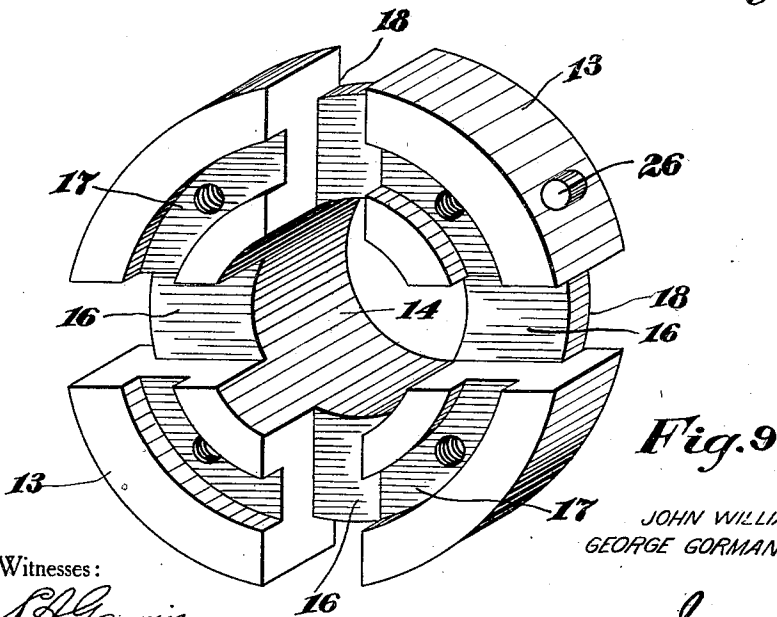
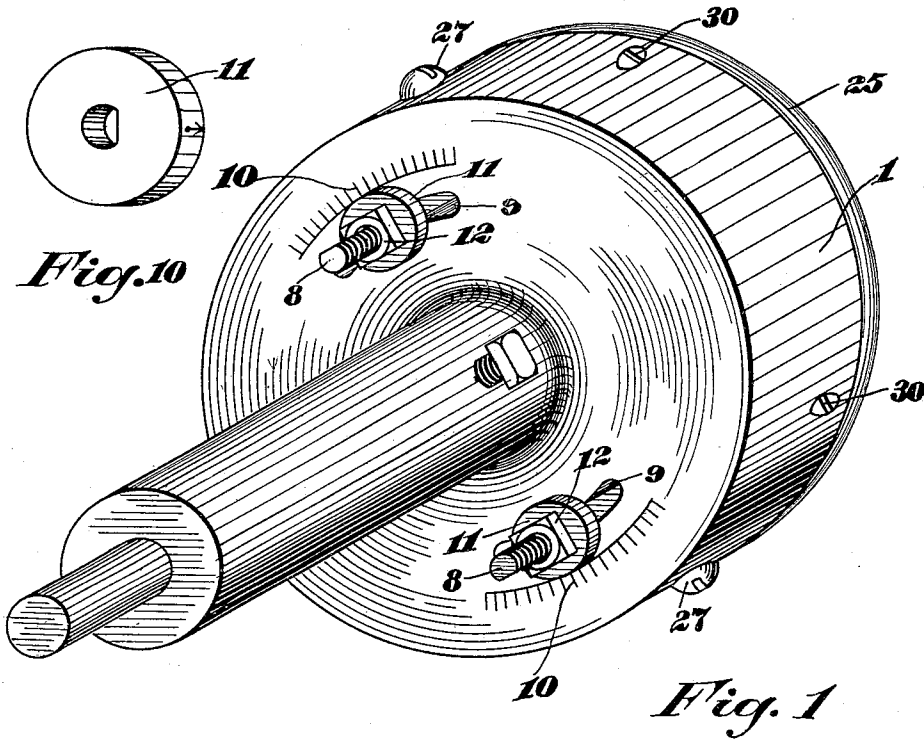


J. W. McATEER & G. G. OVERTON.
 SCREW THREADING DIE.
 APPLICATION FILED JAN. 3, 1911.

1,005,448.

Patented Oct. 10, 1911.
 3 SHEETS—SHEET 1.



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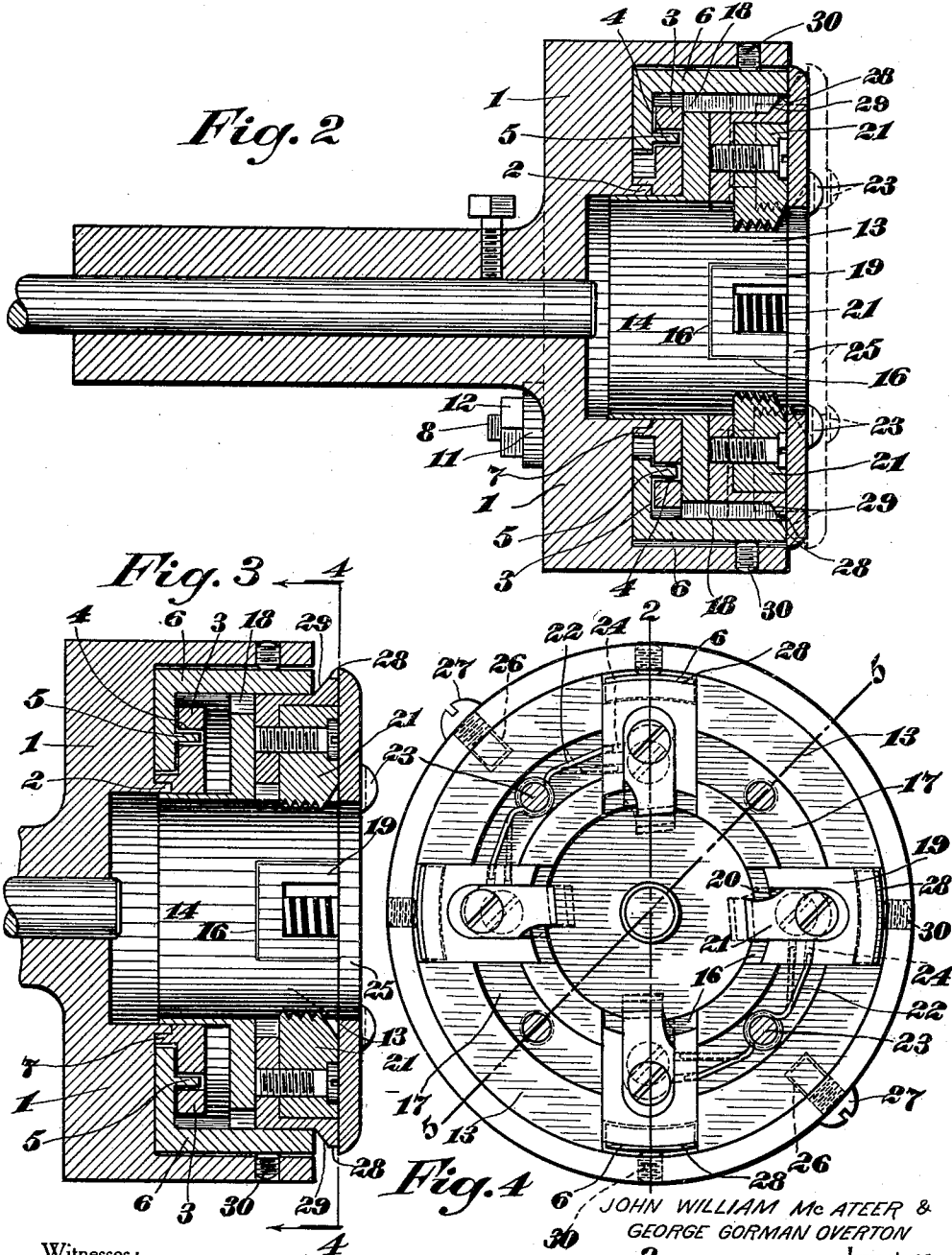
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3 SHEETS—SHEET 2.



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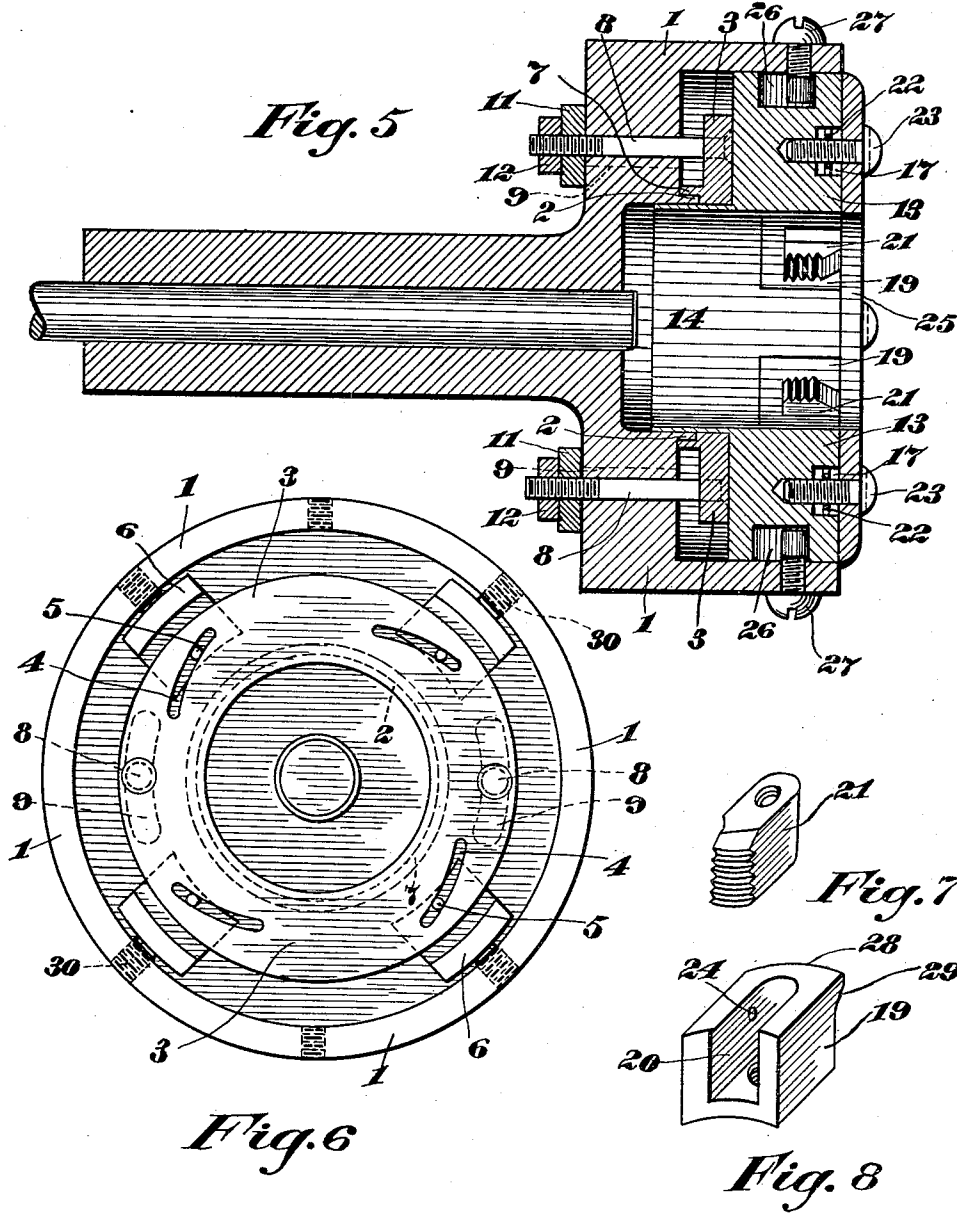
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

JOHN WILLIAM McATEER AND GEORGE GORMAN OVERTON, OF MONTREAL, QUEBEC, CANADA.

SCREW-THREADING DIE.

1,005,448.

Specification of Letters Patent.

Patented Oct. 10, 1911.

Application filed January 3, 1911. Serial No. 600,591.

To all whom it may concern:

Be it known that we, JOHN WILLIAM McATEER and GEORGE GORMAN OVERTON, both subjects of the King of England, residing at Montreal, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Screw-Threading Dies; and we do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention to be hereinafter described relates to dies and more particularly to screw cutting dies.

In order to more clearly disclose the construction, operation, and use of the invention, reference should be had to the accompanying drawings forming part of the present application.

Throughout the several figures of the drawings like reference characters designate the same parts.

In the drawings: Figure 1 is a perspective view of the invention, complete; Fig. 2 is a cross section on line 2—2 of Fig. 4; Fig. 3 is a view similar to Fig. 2, with the cutters in inoperative position; Fig. 4 is a cross section on line 4—4 of Fig. 3; Fig. 5 is a central, vertical, cross section on line 5—5 of Fig. 4, including the cap plate; Fig. 6 is a plan view of the cam ring and die adjusting slides, assembled; Fig. 7 is a perspective view of one of the cutters or dies; Fig. 8 is a perspective view of one of the cutter blocks; Fig. 9 is a perspective view of a die block holder; and Fig. 10 is a perspective view of a washer.

The main objects of the invention are to provide a simply constructed, economical, efficient, and reliable thread cutting die which may be cheaply and rapidly manufactured in large quantities.

A further object is to provide such a die, in which the several parts may be quickly, easily, and accurately assembled, adjusted or removed for renewal or repair.

One important feature of the construction is the provision of means permitting the

easy withdrawal of the work piece from the die by hand, and the simultaneous disengagement of the cutting teeth therefrom.

Referring to the drawings in detail, 1 indicates the cylindrical cup shaped die head or case provided with a small guide flange 2 concentric with its center. This head is adapted to be suitably coupled or connected to the usual power shaft of a lathe, in any well known manner. Slidably mounted on the base of the interior of the head 1 is a ring 3 provided with a plurality of cam slots 4 each adapted to receive a pin 5 projecting from the foot or base of an L shaped slide 6. In order to maintain the ring 3 concentric with the center of the die head, the ring is provided with a short flange 7 which engages the outer face of the flange 2 and moves in sliding contact therewith, thus holding the ring in proper position. The flange 7 also acts to space the ring, slightly, from the base of the die head, to allow free room for the feet of the L shaped slides 6. For moving the cam ring, bolts or threaded pins 8 are provided. These bolts or pins are seated in the ring 3 and extend through the head 1, freely movable in slots 9 concentric with the center of the head. The edge of each slot 9 is provided with a set of graduations by which the amount of movement or rotation of the cam ring 3 may be determined. In the preferred form, the screw threaded projecting end of each bolt is flattened on one side and adapted to receive a washer 11 provided with a cooperating hole or opening and having an index arrow on one side to cooperate with the index 10. Nuts 12 are threaded upon the bolt ends to clamp them in adjusted positions.

Resting lightly on ring 3 is the removable die block holder 13 provided with a flange 14 which fits closely within the inner wall of the ring 3 and extends a short distance toward the base of the head 1. This flange acts to guide the die block holder in its movements and maintain it in proper position. This die block holder is provided with radial die block grooves or guide ways 16, arcuate grooves 17 leading from one die

block groove to the next, and a groove or recess 18 leading from each die block groove.

Slidably mounted in each die block groove or guide way 16 is a small die block 19 provided with a cavity 20 to removably receive the die or screw thread cutter 21 which is held in place by a screw or bolt passed through the cutter and into the base of the block 19. When in position in the die block grooves, the toothed ends of the screw thread cutters will project slightly within the inner wall of the die block holder. To hold these blocks normally retracted so that the cutting ends of the dies will be inoperative, springs 22 have been provided. These springs are seated in the arcuate grooves 17 and are formed as coils having oppositely extending branches the ends of which are loosely seated in holes or sockets 24 formed in one of the side walls of each block 19. The spring is kept in position by a screw 23 which is passed through the coil of the spring and threaded into the bottom of the arcuate groove 17.

In order to hold the cutter blocks and their cutters against longitudinal movement relatively to the cutter block holder, an annular cap plate 25 has been provided. This cap plate overlies the cutter block, when in position, and is secured in place by the screws 23 which are passed therethrough. Thus, the cutter block holder 13, cutter blocks 19, and cap plate 25, move as one part, except for the lateral sliding movement of the cutter blocks.

The longitudinal walls of the cutter block holder 13 are provided with elongated longitudinal openings or slots 26 adapted to loosely receive the inner ends of limit or stop pins 27 which are threaded through the walls of the head or casing 1. These pins, although they prevent lateral movement of the cutter block holder relatively to its head, yet permit limited longitudinal movement relatively thereto.

Each of the cutter block holders 19 is provided with a shoulder 28 projecting rearwardly from its upper edge. An inclined or beveled face 29 connects the lower edge of this shoulder with the longitudinal face of the cutter block. The result of this construction is that when the cutter block holder 13 is extended, as in Fig. 3, the springs 22 will force the cutter blocks outwardly to their full line position so that the shoulders will overlie the upper ends of the L-shaped arms or members 6. In this position, of course, the teeth of the cutters are freed from the work piece which they previously engaged. Thus, in order to free the cutters from the work piece, it is only necessary to pull the work piece outwardly. The cutter

block holder will follow the work piece until the screws 27 engage the walls of the slots 26. At this point the cutter block holder will be stopped and the springs 22 will force the cutter blocks to inoperative position. To return the cutter blocks to operative position again, it is only necessary to force the cutter block holder back to its first position. This may be done by hand. As the cutter block holder is forced back, the inclined faces 29 are engaged by the edges of the L-shaped slides 6 and the cutter blocks are thus forced inward against the tension of their springs 22 and are in operative position.

As an additional brace or support for the slides 6, and to prevent tilting and consequent binding of the same, set screws 30 are used. These set screws 30 are let through the walls of the head and their inner ends engage the long arms of the slides 6 to prevent backward tilting of the same. They may be adjusted, of course, as circumstances require.

The long arms of the slides 6, as will be seen, are seated in the grooves or guides of the cutter block holder and therefore can not have rotary movement relatively thereto. It necessarily follows that rotation of the cam ring will cause these slides to have a radial movement relatively to the cutter block holder.

It is thought that the operation and use of the invention will be clear from the preceding detailed description.

Changes may be made in the construction, arrangement, and disposition of the several parts of the invention without in any way departing from the field and scope of the same and it is meant to include all such within this application wherein only a preferred form has been disclosed.

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent is:

1. In combination, a die head, a cam ring mounted therein, means for operating said cam ring, a plurality of slides operated by said cam ring, a cutter block holder mounted in said head on said cam ring, a plurality of cutter blocks slidably mounted in said cutter block holder and adapted to be operated by said slides, means for connecting said cutter block holder to said head to permit relative longitudinal movement therebetween, and means for automatically moving said cutter blocks to inoperative position as the cutter block holder reaches the limit of its outward movement.

2. In combination, a die head, a cam ring mounted therein, means for operating said cam ring, a plurality of slides operated by said cam ring, a cutter block holder mounted

in said head on said cam ring, a plurality of
cutter blocks slidably mounted in said cutter
block holder and adapted to be operated by
said slides, means for connecting said cutter
5 block holder to said head to permit relative
longitudinal movement therebetween, means
for automatically moving said cutter blocks
to inoperative position as the cutter block
holder reaches the limit of its outward move-
10 ment, and means for automatically forcing
said cutter blocks to operative position as
said cutter block holder is forced inward.

In witness whereof we have hereunto set
our hands in the presence of the witnesses.

JOHN WILLIAM McATEER.

GEORGE GORMAN OVERTON.

Witnesses to the signature of J. W. Mc-
Ateer:

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M. W. LEYMAN, Jr.,

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."